Iranian Journal of Pediatric Society
Volume 2, Number 1, January 2010: 20-25

Original Article

Integrated Management of Childhood Illness in Outpatient Department of a University Hospital

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ABSTRACT

Background and Aim: *Integrated Management of Childhood Illness (IMCI) is a very simple tool based on evidence. It not only simplifies the approach to managing the child, but also considering him as whole at the same time. The aim of this study was to evaluate the utility of the WHO/UNICEF algorithm for IMCI between the ages of 1 week to 14 years.*

Materials and Methods: *In this prospective observation, 66 children presenting to the Outpatient department of Taleghani Medical center were assessed and classified as per IMCI algorithm, the final diagnoses made and treatment instituted on this basis. The study was carried out in August 2006.*

Results: *The study group consisted of 39(59%) girls and 27(41%) boys. Seventeen (25.8%) cases were less than 2 months and about two-third (44; 66.7%) were less than 5 years old. Only 5 patients (7.5%) showed evidence of malnutrition. Diarrhea was the most frequent (25.8%) complaint. Forty-three patients presented with other illnesses not included in IMCI classification. Majority of the mothers (90%) had not received advice on how to care their sick children at home.*

Conclusion: *Data suggests the need for a complementary introduction of community-based IMCI programs with a wider range of disease classification. Improving the communication with the mothers on the care required at home is also recommended.*

Iranian J Pediatr Soc 2010; 2(1): 20-25

Keywords: *Child, Disease Management, Infants, World Health Organization*

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Received: *June 2008;* ***Accepted:*** *July 2008*

INTRODUCTION

Integrated Management of Childhood Illness (IMCI) is a strategy developed by World Health Organization (WHO), United Nations International Children's Fund (UNICEF) and other technical partners to reduce mortality and morbidity due to main causes of childhood illnesses (1). It is based on the idea that health workers need to look at the child as a whole (1). By December 2002, IMCI had been introduced in 109 developing countries (2).

WHO and UNICEF have developed IMCI approach in order to deal more effectively and efficiently with the childhood diseases both in the community and at the primary level health facilities (3). The primary care component of IMCI is centered on case management algorithms (4). The IMCI strategy includes guidelines for the management of sick children at first-level facilities. The guidelines are intended to improve care by ensuring a complete assessment of the child's health, and by providing algorithms that combine presenting symptoms into a set of illness classifications for management (5).

The IMCI strategy seeks to address the child's health problems through three main components: improved case-management by improving the skills of health workers, improving health system support, and improving family and community practice. IMCI has been shown to be associated with improved quality of care, resulting in improved health outcomes (6). IMCI is an effective low cost strategy for improving child health and is highly appropriate for developing countries (7). IMCI also focuses on nutrition and immunization besides diagnosis and treatment of specific disease condition. The integrated approach reduces wastage of resources and avoids duplication of an effort (8). The effects of IMCI can be assessed in the terms of changes in the intermediate outcome such as improved quality of care at health facilities, or the final outcomes such as changes in the under-five year olds mortality or disability rates (9).

IMCI has already become a policy for primary child care in many countries throughout the world. In Tanzania over 80 % of the health workers managing children at first-level facilities had been trained in IMCI by mid-2000, based on an 11-day course with approximately 30% of the training time spent in the clinical practice (10).

In our country IMCI strategy has been introduced in teaching centers since 2002. The main goals of program have been taught in 3-day work-shops in teaching hospitals. The students learned to look at the whole aspects of health problems in a sick child.

The present study was undertaken to assess the effects of a 3-day teaching work-shop on IMCI strategy in outpatient clinic of a university hospital.

MATERIALS AND METHODS

The study was carried out in the Outpatient clinic of Taleghani Medical center in August 2006. All sick children presenting for care were included in the study. During the one month period of study, 66 children attended the above clinic. The history taking, physical examination and treatment plans were carried out by two interns and one first-year resident under the supervision of an attending Pediatrician.

The medical staff had participated in a 3-day course of IMCI strategy implementation. We aimed to collect information on 10 indicators relating to assessment, classification and treatment of the child, counseling and communication with mother. Two structured data collection sheets were designed. One of the sheets was for under 2-month infants, the other one was for children between 2 months to 5 years and more than 5 years of age. The first part of data sheet collected demographic information of patients.

Assessment for the immediate dangerous signs included: obstruction of upper air way, hemorrhage/ shock and coma/ convulsion. Patients were also checked for the three danger signs: able to drink or breast feed, vomit everything and history of convulsions in few previous days. Assessment of the patients included: check for presence of cough or difficult breathing, presence of local infection, diarrhea and/ or fever, ear pain or sore throat. Weight and height were plotted on the growth chart; vaccination status, counseling with mother on how to give the prescribed drug and when to return to the clinic were also assessed. Feeding practice was assessed in the under 2-years. Data sheets were collected daily after completion of clinic's work-hours and checked by the supervising Pediatrician. We used SPSS software for data analysis.

RESULTS

The total number of the observed children was sixty-six. There were 39 (59%) girls and 27 (41%) boys. Table 1 presents the age distribution of 66 patients seen at the clinic during the study period. Seventeen (25.8%) patients were less than 2 months of age, 27(41%) were 2 months to 5 years old, and 22 (33.2%) were more than 5 years. The youngest patient was 7 days old, and the oldest was 14 years. About 50% of the cases were <2 years old. Most of the patients (44; 66.7%) were <5 years old.

Table 2 shows the assessment of weight and height of children according to the growth chart.

Table 1. Age distribution of patients

Age	No.	%
< 1 month	15	22.8
1-2 month	2	3
2 month – 2 year	17	25.8
2 year – 5 year	10	15.2
5 – 7 year	8	12.1
7 - 9 year	6	9
> 9 year	8	12.1
Total	66	100

Table 2. Weight and height distribution of the patients

Weight and height (growth chart)	No.	%
< 5%	9	13.6
5 - 50%	51	77.3
50 - 90%	6	9.1
> 90%	0	0
Total	66	100

The weights and heights of most children (51; 77.3%) were between 5 to 50 percentiles of the growth chart. Nine patients were <5% of the growth chart and four of them were premature neonates. We did not find obese children with weight or height >90% of the growth chart. The vaccination status was complete in 88.8% of patients. All the newborns and 81.5% of infants were breast fed. Twenty-four (88.8%) out of twenty-seven infants were receiving multivitamin and or ferrous sulfate drops as supplemental feeding.

As it is shown in table 3, there were wide ranges of presenting symptoms. Forty-three (65.2%) patients presented with other illnesses not included in IMCI classification. Twenty-three (34.8%) cases manifested with diarrhea, cough or failure to thrive. None of the patients with diarrhea were dehydrated. Jaundice was the most common presenting symptom in the newborn infants. None of the patients presented with the three immediate dangerous signs or the three danger signs.

Table 3. Distribution of reasons for coming to clinic

Disease	No.	%
< 2 month		
Jaundice	10	15.2
Diarrhea	3	4.5
Miscellaneous	4	6
2 months – 5 years		
Diarrhea	9	13.6
Cough	4	6
Miscellaneous	14	21.2
> 5 years		
Diarrhea	5	7.5
Failure to thrive	2	3
Miscellaneous	15	22.8

Fifty-nine (89.4%) children did not need antibiotics and left the clinic without having been prescribed it. No one received the first dose of treatment in the clinic. Only 10% of the caregivers were informed about the signs that would necessitate immediate return to clinic and the same percent were scheduled for a follow-up visit.

DISCUSSION

The multi-country evaluation of IMCI effectiveness, cost and impact (IMCI-MCE) is a global evaluation to determine the impact of IMCI on health outcomes and its cost-effectiveness. The MCE is coordinated by the WHO. MCE studies are underway in Bangladesh, Brazil, Peru, Tanzania and Uganda. Since its introduction, IMCI has been implemented in many countries successfully (10). Its main target group is children under five years old at primary health care centers. Our present study is an observation-based assessment of the quality of care provided to sick children in a teaching hospital. Our study group included newborns to children more than 5 years old; however approximately two-third of our patients were under 5 years of age.

According to a survey on the application of IMCI strategy by medical doctors in Bangladesh, the most frequent presenting illness was fever (80%) followed by cough or cold (49%), pneumonia (25%), and diarrhea (19%). No child presented with diarrhea and dehydration. Thirty-three percent of the children presented with other illnesses not included in IMCI classification such as skin infection. Few of the ill children seeking care at health facilities were fully assessed or correctly treated, and almost none of their caregivers were advised on how to continue the care of the child at home (11).

Several reports from Tanzania indicated that in this country, children in IMCI districts received more thorough assessments and were more likely to be classified correctly than children in non-IMCI districts. Only 5% of the children in districts without IMCI had their weight checked against a growth chart and none were checked for feeding problems, while in IMCI districts 77% and 86% of the above items were checked, respectively. Vaccination status was checked in nearly all children in IMCI districts, but in less than one quarter of children from comparison districts. The inappropriate use of antibiotics was less frequent in IMCI districts and the caretakers of the children were more likely to receive appropriate counseling and had higher levels of knowledge on how to care their sick children. The implementation of IMCI was not associated with higher costs than routine child health care in Tanzania (9,10,12,13).

In a study at Cape Town (South Africa), 90 child observations were conducted before and after IMCI intervention. There was a marked improvement in the assessment of danger signs in sick children, rational prescription, and starting treatment in the clinic. However, there was no change in the treatment of anemia or counseling of caregivers. There was no change in the knowledge of caregivers regarding medications or when to return to the health facility (4).

Chaudhary et al from India reported that danger signs were found in a small proportion of cases seen by health workers. Maximum number of cases presenting to the health facilities had cough as the main symptom (79%). The next frequent observed sign was fever. Diarrhea cases were not frequent since the study was done in winter. Under nutrition was checked in 71% of the total children (8).

In a study in western Nepal, the mothers were aware of fever, child becoming sicker, and drinking poorly as the danger signs of childhood illness (14). In a low-income country such as Malawi, data confirmed that IMCI deals with the majority of diseases affecting under 5 years old children (15).

An investigation in Morocco showed that implementation of IMCI was strongly associated with adherence to the guidelines and correct prescription of antibiotics (16). The wide range of complaints in our data is due to the wide range of ages in our patients.

In the newborn the most frequent complaint was jaundice. In patients from 1 week up to 5 years and in children more than 5 years of age, 65.2% presented with other illnesses not included in IMCI classification, although diarrhea was the most frequent complaint in the above age groups. We did not find danger signs in our cases. In a university hospital in Brazil among 456 children only 5.5% were younger than 2 months and their most frequent complaints were cough and fever (17). Another study in a medical college hospital in India found sound scientific basis for adopting IMCI approach in young infants (18).

In our survey the growth charts of 5 patients revealed malnutrition. The low rate of malnutrition in our data may be due the fact that our clinic is located in a region where more people have moderate to high income. The high rate of vaccination coverage, breast feeding and supplemental feeding in our data is due to appreciable efforts of government for implementation of these principles. Counseling with mothers was poor in our study. The majority of mothers (90%) did not receive information on how to give the medicine at home, when to return immediately, when to return for follow-up, and how to care and feed their sick children at home. The insufficient communications with caregivers were reported in several previous studies (4,10,11). Poor maternal knowledge of danger signs of childhood illness or poor information for correct management of child at home warrants the need for a complementary introduction of community based IMCI programmers to improve the communication between health care providers and children's caregivers.

CONCLUSION

In conclusion our findings show that implementation of IMCI for wider range of age groups needs expansion of disease classification. Our data also indicated that the health providers in outpatient clinics made little effort to explain the necessity of home treatment or to counsel the mothers.

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